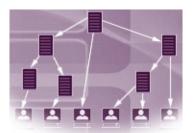
LDD Today



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Policy-based system administration with Domino 6

by Bob Balfe and Dick McCarrick

In previous Domino/Notes releases, creating and managing a standard environment for all your users usually involved maintaining a set of written corporate policies. (An example of a policy might be a specific security configuration you want every Notes user to follow, covering things such as minimum password length and certificate expiration dates.) You would then use these policies to guide you as you entered settings for users throughout your site. If you were anything less than 100 percent familiar with every single setting, sooner or later you'd probably end up making some small, but crucial data entry error, one requiring hours or possibly days to correct. Perhaps you might identify with the plight of the administrator registering 1,000 users with the wrong Internet address format, resulting in hours spent editing each Person document containing the offending information. Those of you who know your way around LotusScript (or are on friendly terms with someone who does) might be able to create an agent to distribute at least some of this policy information corporate-wide. But wouldn't it be great if right out of the box, Domino gave you an automated way of enforcing such standards accurately and easily?

If you think so, you're in luck. Domino 6 helps you solve the problem of applying and managing standard corporate policies by providing a new technology called *policy-based system administration*. This feature gives you a way to centrally define, organize, and manage user settings throughout your organization. All information required for policy-based system administration is stored in your Domino Directory, giving you a single place to control administration activity, from user setup to mail archiving.

This article introduces policy-based system administration. We explain all its major features and components, how they work, and what you can do with them. And we'll provide examples of how policy-based system administration can make your job as a Domino administrator easier. For more information on policy-based system administration and all other Domino 6 administration features, see the **Documentation Library**.

What is policy-based system administration?

In broad functional terms, policy-based system administration is exactly what its name implies—a way for you as a Domino administrator to manage and apply corporate policies for your employees. These corporate policies define the way Domino enforces user settings, which ensures that your established corporate standards and practices control how your technology works (and not the other way around).

In Domino 6, you enforce corporate policies through individual *Policy documents* and *Settings documents* in the Domino Directory. To create a policy, you use a Policy document to specify which Settings documents to include.

A Policy document (see the following screen for an example) defines a set of corporate information you want to apply to your users. It does this by specifying which Settings documents to include in the policy. Each Settings document contains detailed information applicable to a specific area of Domino administration, for example archiving or security. This information defines user settings for that area.



You can consider policy-based system administration as a way to create and apply rules within your user community. The Settings documents contain the rules; the Policy document organizes these rules. So when you create a Policy document, you have a single place to list these rules. You can then apply the rules to establish and enforce administrative standards by distributing them throughout your organization. And to change an existing policy, all you need to do is edit the Policy document and/or one or more Settings documents. No more running around to each user's computer, making the same change over and over—you can now do this all centrally.

You can use policy-based system administration to manage five major areas of Domino administration: archiving, desktop, setup, registration, and security:

Policy area	Major features	Description
Archiving	Server-to-server archiving Server-to-local archiving Folder-based archiving	Archive settings control mail file archiving. These settings determine whether or not to allow archiving, and if you do allow archiving, whether or not to allow Notes users to set their own private archiving criteria.
Desktop	Welcome page Deployment Bookmarks management Client upgrades	Desktop settings control the user's desktop environment. They are applied to a user's client configuration during authentication whenever a change to the policy occurs.
Setup	Browser Proxy Applet security Preferences	Setup settings help configure a new Notes client. They are used only once, during the initial Notes client setup to populate the user's Location document and bookmarks.
Registration	Mail template Password length/quality Internet address format Certificate expiration	Registration settings predefine the User Registration options, if your policies are in place before you register users.
Security	Password expiration ECL management Password length	Security settings establish the administration ECLs and define password management options, including synchronization of Internet and Notes passwords.

Creating a Policy document

To create a Policy document, you must have at least Author access to the Domino Directory, and you must be assigned to the PolicyCreator role. Then, from the Domino Administrator:

- 1. Click the People & Groups tab and open the Policies view.
- 2. Click Add Policy.
- 3. In the Basics section, enter a name for the policy. If you are creating an explicit policy, enter a unique name. If

you are creating an organizational policy, enter a name in one of the following formats:

- For Organizations: */<organization>
- For Organizational Units: */<organizational unit>/<organization>
- For hosted organizations: */<hosted organization>
- For hosted organizations to indicate all hosted organizations in the Domino Directory: *
- 4. Choose Explicit or Organizational as the policy type. Choose Explicit to create a policy that you assign to specific users and groups. Choose Organizational to create a policy to assign to all users in an Organization or Organizational Unit (OU). (See the <u>Organizational and explicit policies</u> section for more information.)
- 5. Optionally, enter a short description of the policy.
- 6. To create a child Policy document at this time, click Create Child. This creates a new Policy document that includes the name of the parent policy. You can save this new child Policy document and return to it at a later time. When you close this document you return to the parent Policy document.
- 7. In the Setting Type section, select the Settings documents (registration, setup, archiving, desktop, and security) you want to apply to this policy. These can be existing Settings documents you created earlier, or you can create new Settings documents on-the-fly by clicking New and completing the Settings document form
- 8. Save and close the new Policy document.

Creating a Settings document

To create Settings documents, you must have at least Editor access to the Domino Directory and you must be assigned to the PolicyCreator role. You can create Settings documents when you create a Policy document, or you can create Settings documents by opening the Domino Administrator and following these steps:

- 1. Select the People & Groups tab and open the Settings view.
- 2. Click Add Settings.
- 3. Select the type of Settings document you want to create (registration, setup, archiving, desktop, or security).
- 4. Complete the fields appropriate to the settings type, and then save and close the document.

Organizational and explicit policies

You can assign policies to individuals within your company two different ways, organizationally and explicitly.

Organizational policies apply settings to users or groups based on your organizational structure. An organizational policy affects all users in a naming hierarchy (*/Acme, */Sales/Acme, and so on) and can apply to either an Organization or Organizational Unit (OU). Organizational policies distribute settings to the broadest group of users, when the settings follow organizational lines. For example, to apply settings to all users in Sales/Acme, create an organizational policy named */Sales/Acme. Any user registered using the Sales/Acme certifier automatically receives the settings in this organizational policy. Organizational policies can be considered wildcards and are usually the most effective method to distribute and maintain settings that apply to all users in a specific Organization or OU.

Explicit policies assign settings to people and groups across different organizations. An explicit policy is assigned in the Person document and applies to a group of users when an Organization or OU does not exist to define the group. Explicit policies are most appropriate for environments without an organizational hierarchy or when you need to assign common settings to a group that spans multiple organizations. For example, suppose your company includes contractors as temporary employees working in many different OUs. You want your contractors to inherit some settings from the applicable organizational policy such as */Sales/Acme. But you also want certain settings to apply only to contractors. For instance, you can set their certificates to expire after six months. To do this, you can create an explicit policy called /Contractors that applies only to them. (You can assign explicit policies with the Assign Policy tool.)

When deciding which type of policies to use, consider the following suggestions:

- Use organizational policies to apply settings to groups in accordance with your existing naming hierarchy.
- Use explicit policies when groups to whom you want to apply settings don't match your Organization or OU structure.
- Above all, feel free to use both types of policies within your company—indeed, we expect this will be common
 practice.

Note: Both explicit and organizational policies can be configured as *exception policies*. An exception policy explicitly exempts a specific individual or group from one or more of your standard policy settings. For example, your executives may need to bypass certain settings. Exception policies are powerful because they override all other settings (including enforced settings) that may apply to the exempted persons. But in practice, you should be careful not to overuse exception policies. Too many exemptions might decentralize the administration of these settings and therefore, could defeat the entire philosophy of policy-based system administration.

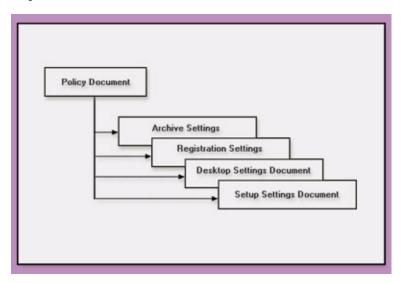
Once created, organizational policies are automatically assigned to users, based on the certifier. Explicit policies, on the other hand, must be assigned manually. You can assign explicit policies during user registration, in the Person document, or by using the Assign Policy tool. It's best to create organizational policies *prior* to user registration; the best time to assign explicit policies is *during* user registration. If you don't create your policies before you register users, you can't apply registration policy settings. Applying policies at registration time also ensures that setup policy settings are available when the registered users perform Notes client setup.

Because organizational and explicit policies are hierarchical, inheritance and enforcement automatically fit into a parent-child relationship. This model gives you the ability to define corporate-wide standards inherited by Organizational Units while allowing for the occasional exception. Just imagine, you can have an archiving policy in which your end users have no control, some control, or complete control of where and how their mail files are archived.

What makes up a policy?

If you are familiar with other aspects of Notes and Domino administration, administering policies will probably be relatively painless. All policy information is stored on the server in the public Domino Directory. That last sentence may spark a few questions, such as, "If policies reside in the public Domino Directory, how are they enforced when my users aren't connected?" Good question—with an interesting answer. When a user authenticates with the home mail server, a process called *dynamic configuration* runs locally and caches *all* policy information for that user. This ensures that while the user is disconnected, all policies are still enforced. This also means users who remain disconnected for an extended period will not receive any changes to policies until they reconnect and authenticate with their home servers.

As stated previously, a policy consists of a collection of Settings documents, organized within one high-level Policy document containing a single set of fields filled with the appropriate settings. Let's look at this through a simple diagram:



In this illustration, the top-level Policy document represents the policy you want to enforce in your organization. The subordinate Settings documents (for archive, registration, desktop, and setup) contain the settings information that apply to this policy. You can think of these Setting documents as buckets of information containing settings that in previous releases had to be entered through many different places within the Domino and Notes user interface. The Policy document dips into these buckets to derive the settings needed to apply to the appropriate users and groups.

Knowing the relationship between Policy documents and Settings documents is crucial to understanding two important features of policy-based administration: policy hierarchies and effective policies.

Policy hierarchies

Let's forget about Domino 6 and policy-based system administration for a moment and consider a typical large corporation. This company has rules that apply to all employees and rules that apply to some departments and not others. Some workgroups within those departments have their own rules, with some members exempt. And there

are rules for particular types of employees, for example, contractors and managers. This may sound complex, but policy-based system administration can make sense of it all through policy hierarchies.

Parent and child policies

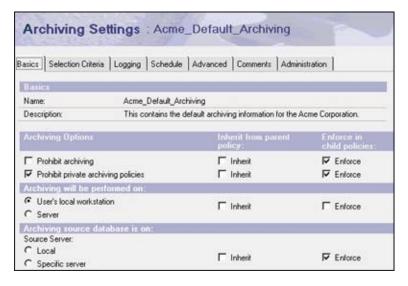
You construct a policy hierarchy by establishing *parent-child* relationships between policies. When you create a Policy document, you can also create one or more child documents for it. The original policy is then considered the child policy's *parent*. Through the parent-child relationship, you create a hierarchy of policies to apply across your entire corporation. In such a hierarchy, Policy documents build the relationship, and Settings documents determine the value of the fields based on their position in the hierarchy. Using either inheritance or enforcement at the field level, you can refine settings for the requirements of individual Organizational Units while maintaining control of certain standards that must be enforced across the company.

For example, if you want all users to use the same Internet mail name format, set that value in the Registration Settings document for the top-level parent policy. After you do this, you don't have to change or reenter it in subsequent child policies. You instead just instruct the child policy to inherit this value from its parent. However, if your organization includes a group of international users for whom this setting is a problem, you can create an explicit policy that applies only to this group. The combination of explicit and organizational policies together provide the control and the flexibility you need.

Inherited and enforced policy settings

A major feature of a hierarchical policy structure is the ability to inherit and enforce settings. *Inherited* settings are derived from another Setting document. *Enforced* settings are set in a parent Setting document and are automatically inherited by all child documents. This setting cannot be overridden in any child document. This lets you enter a setting in a single place and then populate it throughout your corporate structure—while still allowing other settings to be set within each Organizational Unit. Note, however, that *exception policies* overrride enforced settings. This is another reason you should use exception policies sparingly.

Policies inherit and enforce all settings at the field level. Two checkboxes are provided for each field that can be inherited or enforced. The following screen shows how each field in the Archive Settings document can either inherit its value from its parent or enforce a setting to all of its children:



Effective policies

In a hierarchical policy structure, settings that apply to a particular group or user may not be from a single Policy document. Instead, policy information may be derived from multiple documents, based upon inherited and enforced settings (or even exception policies if they're used). This derived set comprises the user's *effective policy*. The effective policy consists of policy settings dynamically calculated at the time of execution. The field values in an effective policy may originate from many different Settings documents. Each hierarchical level can have an associated policy, so users may have a combination of policy settings that include the values set at their OU level, and those inherited from a parent policy. The resolution of these settings, stepping up through the organizational hierarchy, creates the effective policy for each user.

In the end, it's the user's effective policy that determines which settings apply. So even though the effective policy

doesn't actually exist in the same sense a Policy document does, it's nevertheless among the most crucial concepts you need to fully understand how policy-based administration works.

Because the effective policy settings are derived at execution time, it may not always be obvious what effect changing a value of a policy setting will produce. The Policy Synopsis report shows the policy from which each of the effective settings is derived. This helps you better understand the settings of individual policies, Setting documents, and effective policies; and how they relate and affect each other.

Tools for policy-based system administration

With every new technology, however beneficial, there's usually at least some additional level of complexity. While extremely flexible by nature, policies can also be somewhat unfamiliar territory to the uninitiated. And let's face it, with the way many large, global companies are structured today (national, international, local, remote, IT, HR, and so on) a well-defined policy structure can be more than a little complex to create and maintain. To help make sense of all this, Domino 6 provides three useful tools for effective policy-based system administration: Assign Policy, View Policy, and Policy Synopsis.

Assign Policy

The Assign Policy tool gives you the ability to assign explicit policies. With this tool, you can assign an explicit policy to a user or group, or you can change the explicit policy assignment. The Assign Policy tool lets you make changes to multiple users or groups, by associating an explicit policy with a person or group. When you change the explicit policy for a user or group, Assign Policy gives you the option of viewing how the change impacts the effective policy for that user or group.

For example, let's suppose your company has a group in the Domino Directory called Executives. Imagine the group contains high-level managers and VPs from different organizations and OUs within the company. Your corporate policy states that all executives must follow a strict mail archiving policy. Here's an example of a few of the people in the Executives group:

Sandy Beech/Sales/Acme Lee Smith/Acme Fran Jones/Development/Acme

In this example, each person has a different organizational policy for archiving their mail:

User	Organizational mail policy
Sandy Beech	* */Acme */Sales/Acme
Lee Smith	* */Acme
Fran Jones	* */Acme */Development/Acme

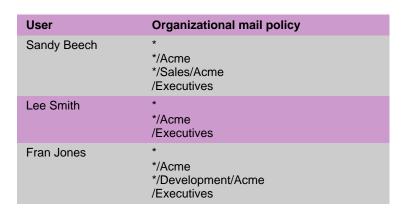
So you create a new explicit policy called /Executives and make it an exception policy. You then use the Assign Policy tool to assign the policy to each member in the Executives group:

- 1. From the Domino Administrator, click the People & Groups tab.
- 2. Open the People view and select the users to whom you want to assign policies, or open the Groups view and select the groups to which you want to assign policies.
- 3. From the Tools pane, click People or Groups (depending on your selection in the previous step), and then select Assign Policy.
- 4. Complete the Assign Policy Options dialog box appropriately.



- 5. Optionally, click the View Policy Synopsis button to see the new effective policy for the group or users to which you are assigning this policy.
- 6. In the Choose Organizational Policy dialog box, select the organizational policy you want to combine with the explicit policy to create the new effective policy.

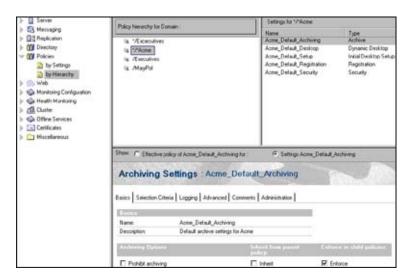
After the Assign Policy tool populates the explicit policy field in each Person document in the Domino Directory, the inheritance tree for the users above now looks like this:



View Policy

The View Policy tool lets you view your policy hierarchy and the relationships between policies and policy Settings documents. You can also view the effective policy for a selected user or group.

The View Policy tool has two views, which you access from the Configuration tab of the Domino Administrator. The By Hierarchy view shows the hierarchy of policies, and the settings associated with each one in the hierarchy. Use this view to display all policies, see details of a policy, or see which policies are assigned to a particular user or group. Here is an example of the By Hierarchy view:



The By Settings view shows policy Settings documents for each administrative area and the Policy documents that use each Settings document. Use this view to see where each setting is used and how a change to the setting affects other policies. Here's an example of the By Settings view:



Policy Synopsis

With all this talk about effective policies with inherited and enforced settings, you may be asking yourself, "How can I keep track of where setting information is coming from, so I can be sure the right people receive the right settings?" We've anticipated this concern. Domino 6 includes a tool called Policy Synopsis that helps you figure out which settings fields come from which level in the hierarchy.

The Policy Synopsis tool determines the effective policy governing a selected individual and then creates a report that lists the policies and settings that apply to that user. Reports appear in a database called Policy Synopsis Results (polcysyn.nsf). You can create two types of reports, Summary and Detailed. Summary reports display the policy hierarchy, listing both the organizational and explicit Policy documents used to derive the effective policy settings for the specified user. Detailed reports include everything in the Summary, plus actual settings in the effective policy.

To use the Policy Synopsis tool:

- 1. From the Domino Administrator, click the People & Groups tab.
- 2. Select the People view.
- 3. From the Tools pane, select Policy Synopsis.
- 4. Complete the Policy Synopsis dialog box.
- 5. Click Results Database to define the server location and file name of the Policy Synopsis Results database.

6. Click OK. When the Results database opens, double-click the report to read it.

Let's take a look at what a section from a sample Policy Synopsis for a person might look like:

Policy Synopsis - Generated at 11:17:33 AM on 01/19/2002 Effective Policy for: Sandy Beech/Sales/Acme Derived from the following policies:

*/Acme

*/Sales

Archive Settings:

NoArc = 0 from Company Wide assigned in policy *
NoPrivArc = 0 from Company Wide assigned in policy *
ArcLoc = 2 from Acme Org assigned in policy */Acme
ArcSrcChcs = 2 from Acme Org assigned in policy */Acme
ArcLocChcs = 2 from Acme Org assigned in policy */Acme
ArchSrcServer does not have a value set
ServerName = bbalfe4/DNA from Sales Archive Settings assigned in policy */Sales/Acme

This synopsis was run prior to assigning any explicit policy to show the effect of different values inherited from difference policies within the ancestor hierarchy.

Examples of using policies

Here are a few simple examples of policy-based system administration tasks that might have been difficult and/or tedious to perform in previous releases. By no means do these examples represent everything you can do with policy-based system administration—we're just whetting your appetite.

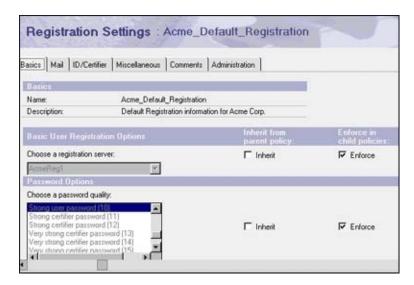
Creating a corporate policy

Imagine you're the Domino administrator for Acme Corporation. Policy-based system administration greatly simplifies one of your major headaches—ensuring that all your employees are set up the right way, without having to rely on each user to select the exact options and preferences appropriate for them. So the first thing you do is create an organizational Policy document called */Acme. This organizational policy applies to all users in your company unless you specifically choose otherwise. The */Acme Policy document serves as a container for the Setting documents that control registration, setup, archiving, user desktops, and security.

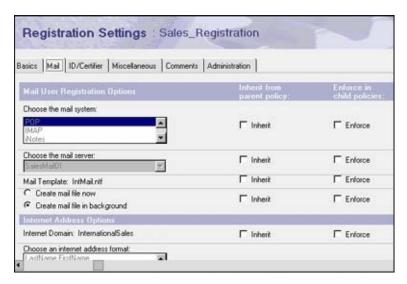


Registration settings

Acme Corporation has numerous company policies. Among other things, to ensure customers can easily send email to your employees, all users must have the same Internet mail address format. Employees are to use Lotus Notes as their default mail system. And you want to enforce a standard password quality and certificate expiration date across the corporation. To do this, create a Registration Settings document (let's call it Acme_Default_Registration), and enter all this information into it. You select the mail template to use, and specify that certificates expire after 24 months. You can then choose Acme_Default_Registration as the Registration Settings document for */Acme. This means that by default, the information in Acme_Default_Registration applies to all Acme employees at registration time.



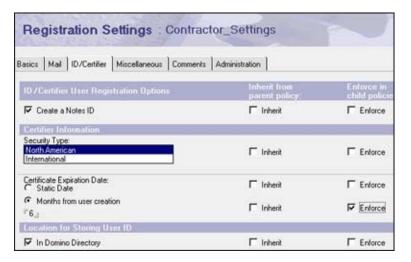
But as with most companies, Acme has exceptions to every rule. For example, your on-the-go, multinational Sales force needs its own mail template. Further, Sales members are roaming users and require a different Internet mail address format. No problem—just create an organizational policy for your Sales OU called */Sales/Acme. Then create a Registration Settings document called, for instance, Sales_Registration; and enter the registration information appropriate to the Sales group. These settings will apply whenever you register a user with the Sales/Acme certifier.



So far so good. But here's a twist: Acme corporate policy calls for certificates for all contractors to expire after 6 months, not 24. However, these contractors are spread throughout your OUs. You can't create an organizational policy that covers all contractors. Instead, create an explicit policy, which you can name /Contractors.



Then create a new Registration Settings document for the /Contractors policy called, for example, Contractor_Settings. Enter the 6-month certificate expiration setting and any other information that applies to your contractors.

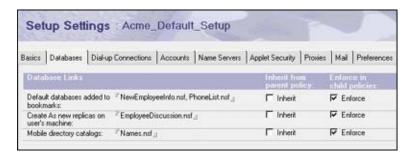


To have these settings applied to contractors at registration time, open the contractor's Person document and type /Contractors in the Assigned Policy field.

Setup and desktop configuration

Now that you've gotten registration settings squared away, you can turn your attention to user setup, including enforcing a standard desktop for all your users. For example, you need to control user and location preferences, which up to now have been in the hands of each individual user—with sometimes unpredictable results. You also want the same initial set of databases and bookmarks for each user along with the same Welcome page. Perhaps most importantly, each user must have the same initial ECL settings for security.

By now, you've probably caught on: policies make all this much easier to implement than in previous releases. No more trusting your users to select all the right preferences. No more days spent visiting one user at a time to verify that everything's set up correctly. Instead, just create Setup and Desktop settings documents for your */Acme policy, and fill in this information. These settings will then apply to all users in your corporation. And as mentioned, you can handle exceptions to these rules using organizational and/or explicit policy documents.



Centrally managing mail file archiving

Then there's the issue of mail archiving—the problem that prompted us to develop policy-based system administration in the first place. As Acme's administrator, you've been struggling to deal with these mail file archiving issues:

- Lack of available space on your mail server
- Need for a central archive server
- Archiving must run off-hours
- Users aren't allowed to set their own archive settings
- Your Notes environment includes clients from different releases

To make your life easier, you create an Archive Settings document for the *Acme policy. This lets you:

- Centrally manage archive settings, with users prohibited from changing or creating their own
- Enable server-based archiving from a mail server to a designated archive server
- Designate a Domino 6 server as the archive server so policies can be enforced in a mixed environment
- Schedule archiving to occur during off hours for everybody

We've deliberately kept the above examples simple. For instance, we haven't talked about parent-child policies, exceptions policies, or inherit/enforce. However, we have shown how policies can greatly simplify setting up users, even when certain groups need exceptions to the corporate rules.

Policy-based system administration: making your job easier

Policy-based system administration exemplifies the Lotus commitment to lowering total cost of ownership with centrally managed ways to set and enforce corporate-wide policies in an efficient and time-saving manner. This not only puts you more firmly in control of your environment, but also gives you a flexible way to manage a user down to the field level. And rest assured, we'll continue to explore ways to extend policy-based system administration to other areas of Domino administration in future releases—so stay tuned!

ABOUT BOB BALFE

Bob Balfe is a Senior Software Engineer for IBM and is the project leader for the internal automated testing tool called DNA (Domino and Notes Automation). Bob was the primary developer for automating the policy-based system administration engine. The test covers many permutations and has saved hundreds of person-hours from a testing standpoint